

REMARKS

By this amendment, claim 1 is revised to place this application in condition for allowance. Currently, claim 1 is before the Examiner for consideration on its merits.

In the Office Action, claim 1 stands rejected under 35 U.S.C. § 103(a) based on JP 5-75485 to Kawasaki when taken in view of United States Patent No. 4,819,507 to Pescher. In the rejection, the Examiner admits that Kawasaki fails to teach the invention, noting that Kawasaki only controls the position of the rolls on the basis of cylinder pressure measurements. To remedy this deficiency, the Examiner relies on Pescher for the alleged teaching of controlling the position of ends of rolls using a measured thickness. The Examiner concludes that given the teachings of Pescher, it would be obvious to provide adjustments of the Kawasaki roll ends in response to measured thickness deviations.

Applicants respectfully traverse the rejection on the grounds that the applied prior art fails to establish a *prima facie* case of obviousness in light of the amendments made to claim 1.

In review, claim 1 has been revised to clarify the rolling step and disposition of the plurality of reduction stands. This step also makes it clear that the direction of reduction varies for the roll stands. Claim 1 also now defines a measuring step which measures the wall thicknesses within the circumferential directions of the seamless steel tube at the direction of reduction and also at directions corresponding to both sides of each axis of the reduction rolls.

Support for the amendments regarding the measuring step can be found throughout the specification, including the last paragraph of page 12 and the Industrial Applicability section found on page 13. Support for the rolling step can be found in numerous places, Figure 1 and its description being one example.

The rejection is traversed through the headings of the INVENTION, ARGUMENTS, and SUMMARY.

INVENTION

An object of the present invention to provide a method of producing seamless

steel tubes by which not only the deviations in thickness occurring in the direction of reduction in the mandrel mill (see Fig. 8(a)) but also the deviations in thickness occurring in other directions than the direction of reduction (see Fig. 8(b)) can be suppressed.

The present invention has a technical feature of measuring respectively the wall thicknesses within the circumferential directions of the seamless steel tube produced, not only at the direction of reduction but also at the directions corresponding to both sides of each axis of the reduction rolls. In addition, the positions of both ends of each axis of the reduction rolls in at least a final pair of reduction stands of the mandrel mill is controlled separately and individually based on the results of the measurement of the respective wall thicknesses so that deviations in wall thickness can be minimized.

By doing so, it becomes possible to effectively control the deviations in thickness at any position within the circumferential direction, irrespective of the direction of reduction.

The features of the invention as noted above are now detailed in claim 1, as amended. More specifically, claim 1 calls for the measuring step to include measuring the wall thicknesses at the axis of reduction but also at directions corresponding to both sides of each axis of reduction. The Examiner's attention is directed to Figures 2c, 3a and 3b and their description on pages 7-11 of the specification in the event further understanding of the invention is required.

ARGUMENT

In the rejection, the Examiner contends that Kawasaki and Pescher collectively teach the invention. This position is in error, and particularly so when considering the revisions to claim 1.

As admitted by the Examiner, Kawasaki does not even teach a rolling control using measured wall thicknesses. The Examiner mentions that Kawasaki discloses tube rolling whereby the position of both ends of the rolled axes is controlled separately and individually. It is also mentioned that Kawasaki discloses that the position control is performed on the basis of cylinder pressure measurements. Neither of these

suggestions teaches the invention.

Moreover, Kawasaki is silent that greater deviations in thickness than the deviations given by calculations occur due to deviations in equipment installation and uneven wear of reduction rolls and that the deviations in thickness occur after setting of the mandrel mill. Thus, it is clear, and as admitted by the Examiner, that Kawasaki lacks the fundamental features of the invention.

Pescher does not supply the deficiencies in Kawasaki so as to establish a *prima facie* case of obviousness against claim 1. The Examiner mentions that Pescher discloses rolling in which the position of both ends of the rolled axis are individually adjustable in response to measured thickness of the product in order to overcome thickness deviations across the width of the strip. While this may be true, this is not what is claimed.

Pescher relates only to adjusting thickness or overcoming variations in thickness of sheet metal from one edge to another of a rolled strip by adjusting the inclination of the axis of the rolls. Applicants are not claiming to be the first to adjust the ends of rolls in response to thickness measurement; the invention goes well beyond the teachings of Pescher.

While the Examiner contends that it would be obvious to provide adjustments to the Kawasaki roll ends in response to measured thickness deviations, following the suggestion of Pescher, in order to obtain uniform dimensions of the product, the combination of Pescher and Kawasaki still does not teach the limitations of claim 1, as amended.

More particularly, Pescher is silent in producing seamless steel tubes so that the deviations in wall thickness can be minimized. Pescher is merely concerned with simultaneously driving the screws of two parallel screw and nut systems. Pescher is not concerned with the deviations within the circumferential directions in wall thickness of the seamless steel tubes that result from three-dimensional working, which is quite different from the two-dimensional steel sheet working of Pescher.

Simply said, Pescher fails to teach the claim limitation relating to measuring respectively the wall thicknesses within the circumferential directions of the seamless

steel tube produced, not only at the direction of reduction but also at the directions corresponding to both sides of each axis of the reduction rolls.

Since Pescher does not perform the claimed measurement, Pescher also fails to teach or suggest controlling separately and individually based on the results of the measurement of the respective wall thicknesses, the positions of both ends of each axis of the reduction rolls in at least the pair of final reduction stands of the mandrel mill.

Again, the present invention requires measuring respectively the wall thicknesses in the manner above and controlling the positions of both ends of each axis of the reduction rolls in the manner above, which result in suppressing the deviations in thickness at any position within the circumferential direction of the seamless steel tubes, irrespective of the direction of reduction.

Given that Pescher does not teach the claimed measuring step or the claimed control step, even if Pescher were used to modify Kawasaki, the two references still fail to establish a *prima facie* case of obviousness.

Moreover, there is no other factual basis in the record for the Examiner to conclude that motivation exists to somehow modify the teachings of Kawasaki and/or Pescher and arrive at the invention. Any further allegation can only be the hindsight reconstruction of the prior art in light of Applicants' disclosure, and such a stance by the Examiner could not be sustained on appeal.

The Examiner's attention is also directed to the Tables 1 and 2 on pages 11 and 12 of the specification. It is submitted that this comparative evidence is further substantiation that the invention as now defined by claim 1 merits patentability, and is not taught or suggested by the applied prior art.

Thus, there is no basis in fact to maintain the rejection of claim 1, as amended, and the rejection should be reversed.

SUMMARY

It is respectfully contended that the combination of Kawasaki and Pescher does not establish a *prima facie* case of obviousness against claim 1, and this claim is now in condition for allowance. In particular, Pescher fails to teach the measuring and

controlling steps now set forth in claim 1.

Accordingly, the Examiner is respectfully requested to examine this application in light of this Amendment, and pass claim 1 onto issuance.

If the Examiner believes that an interview with Applicants' attorney would be helpful in expediting the allowance of this application, the Examiner is invited to telephone the undersigned at the number given below.

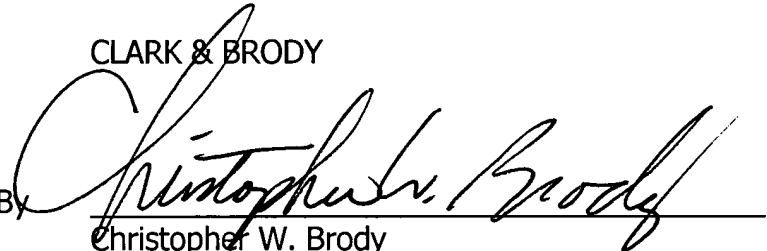
The above constitutes a complete response to all issues raised in the Office Action dated June 7, 2005.

Again, reconsideration and allowance of this application is respectfully requested.

Please charge any fee deficiencies and credit any excess fees to Deposit Account No. 50-1088.

Respectfully submitted,

CLARK & BRODY

By 
Christopher W. Brody
Reg. No. 33,613

Customer No. 22902
1090 Vermont Ave. NW
Suite 250
Washington, DC 20005
Telephone: 202-835-1111
Facsimile: 202-835-1755
Docket No.: 12049-0013
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